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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,468	02/04/2004	Hiroyuki Tomimatsu	118459	1357

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EXAMINER

LEE, KYOUNG

ART UNIT PAPER NUMBER

2812

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/770,468	Applicant(s) TOMIMATSU, HIROYUKI	
	Examiner Kyoung Lee	Art Unit 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) 8-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02/04/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02/04/2004, 8/3/05
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

- I. Claim 1-7, drawn to a method of making a semiconductor, classified in class 438, subclass 106.
- II. Claim 8-10, drawn to a semiconductor device, classified in class 257, subclass 678.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)).

A "product-by-process" claim is one in which the product is defined at least in part in terms of the method or process by which it is made. *Atlantic Thermoplastics Co. Inc. v. Faytex Corp.*, 23 USPQ2d 1481, 1488 (Fed. Cir 1992). Although it is noted that claim(s) 8-10 is/are product-by-process claims, product-by-process claims are directed to the product no matter how actually made. *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). Consequently, it is the patentability of the final product, and not the patentability of the process, that must be determined in a product-by-process claim. *In re Thorpe*, 227 USPQ 964, 966 (CAFC 1985), *Ex parte Edwards* 231 USPQ 981, 983 (BdPatApp&Int 1986). Thus, in the instant case, the product as claimed can be made by another and materially different process such as providing a hard spacer between

first and second semiconductor chips rather than providing the liquid resin on the first semiconductor chip and liquid resin becoming a spacer as it hardens.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Philip Caramanica on August 25, 2005 a provisional election was made with traverse to prosecute the invention of group I, claim 1-7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 8-10 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, and 5-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Oh et al. (U.S. Patent Appl. 2002/0125556).

In claim 1, Oh disclose a method of manufacturing a semiconductor device, comprising: providing liquid resin (3) on a first semiconductor chip having a plurality of pads (1), which is mounted on a substrate having wiring pattern (7);

Mounting a second semiconductor chip (2) over the first semiconductor chip through the liquid resin, in an overlapping manner and separated from the pads; and hardening the liquid resin (3) to form a spacer between the first semiconductor chip and the second semiconductor chip, and to fix the first and second semiconductor chips together (see figure 1, and [0020]-[0022] and [0064]).

In claim 2, Oh disclose the method of forming the spacer such that the first semiconductor chip is oriented generally in parallel with the second semiconductor (see figure 1).

In claim 5, Oh disclose the method of electrically connecting the pads on the first semiconductor chip and the wiring patterns with wires (5), before the mounting of the second semiconductor chip (see [0024]-[0025] and [0037]).

In claim 6, Oh disclose the method of forming a dielectric layer (4) on a surface of the second semiconductor chip that face the first semiconductor chip (see figure 1 and [0026]-[0027]).

In claim 7, Oh disclose the method of forming a sealing section (8) on the substrate to seal the first and second semiconductor chips (see figure 5 and [0073]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oh et al. (U.S. Patent Appl. 2002/0125556) in view of Glenn et al. (U.S. Patent 6,472,758).

In claim 3, Oh disclose the method as claimed and rejected above, but does not teach the method of the liquid resin including a plurality of balls, such that the balls are present between the first and second semiconductor chip. Glenn discloses the method of the liquid resin including a plurality of balls (48), such that the balls are present between the first (14) and second (16) semiconductor chip (see figure 6 and column 7, lines 7-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to including a plurality of balls in the liquid resin, such that the balls are present between the first and second semiconductor chip in the method of Oh in order to control the space between first and second semiconductor chip.

In claim 4, Oh disclose the method as claimed and rejected above, but does not teach the method of the ball being elastic. Glenn discloses the method of the ball being elastic (see column 7, lines 26-43). It would have been obvious to one of ordinary skill in the art at the time the invention was made to the ball being elastic in the method of Oh in order to reduce or prevent damage on the semiconductor chips.

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Miyata et al. (U.S. Patent Appl. 2002/0180025).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyoung Lee whose telephone number is (571) 272-1982. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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JENNIFER KENNEDY
PRIMARY EXAMINER